The Vermont Farmer.

W H Matthews 1jan77

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C. HORACE HUBBARD, Agricultural Ed'r,

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BOARD OF AGRICULTURE MEETINGS.

Brandon, Monday and Tuesday, January 17 and 18.
Orwell, Tuesday and Wednesday, Jan. 25 and 26.
Fayetteville, Tuesday and Wednesday, Feb. 1 and 2.
Pomfret, Thursday and Friday, Feb. 3 and 4.
Rochester, Tuesday and Wednesday, Feb. 8 and 9.
Chelsea, Thursday and Friday, Feb. 10 and 11.

The Bulletin of the New Hampshire board for December is received, containing current items of interest, reports of the meetings of the board, etc. It is a valuable publication.

The New Hampshire board of agriculture offers to take charge of and forward whatever may be selected by individuals, agricultural societies, granges or other associations for exhibition at the centennial, except live stock, heavy machinery and cumbersome articles.

Trees.

George B. Emerson, author of "Trees and Shrubs of Massachusetts," and one of the most intelligent and enthusiastic students and lovers of trees, says that he presumes the annual rainfall is not much affected by trees, but the forest growth, with its thick covering of leaves is a powerful agent in holding back the rainfall and distributing it gradually through the streams.

We have always questioned the truth of the prevalent opinion that the annual rainfall is increased by trees, but have had to stand as one against numbers. It is cheerful to find one's self supported by such good authority.

Mr Emerson says the beautiful tints on the leaves of our forests in autumn are not caused by frost. Frost kills the leaves and impairs the beauty of the autumnal tints.

The destruction of forest trees in our country is sad to contemplate, and unless something is done within fifteen years to stop it or provide for their renewal our country will be comparatively treeless.

Trees take up carbonic acid gas and nitrogen from the air and replace it by life-giving oxygen. They protect the home, the cattle in the fields and the crops from the winds. Evergreens should be planted in belts for the protection of buildings from fierce winds.

Trees should be planted about the house, but not too near. The sun should not be excluded. Evergreens should not be planted on the south side.

The bleak and barren hill-tops and mountain sides and waste lands should grow trees. Better varieties of trees should be cultivated. The valuable white pine will grow on light, sandy soils as well as pitch pine.

These brief jottings from the lecture of Mr Emerson at the meeting of the Massachusetts board of agriculture at Haverhill, are gleaned from the very interesting report in the New England Farmer.

Cost of Draining and Benefits Derived.

Mr Richard Thompson communicates to the Colonial Farmer of Fredericton, N. B., an account of improvements made in five acres of stiff clay land by draining. He sent to England for their practical drainers, who took the job, digging 558 rods four feet deep and twenty-four feet apart at sixty cents per rod, twenty-eight rods six and one-half feet deep, twenty-four feet apart, at $1,20 per rod. Extra work in open ditching and building outlets $9, making $370,40, 800 drain pipes one and one half inches at $9 per thousand, 6300 do, two inches at $10,50, 1529 do. three inches at $16, and 480 do, four inches at $20. Cost of pipes $107,39. Whole cost $478,79. Cost per acre $95,96. The men earned $2,50 per day each. The pipes or tile are one foot in length. In 1875 the land was sowed to roots, and the yield was, per acre, of turnips 660 bushels. Carrots 467 bushels. Potatoes 289 bushels. Parsnips 359 bushels. Mangels 800 bushels. In 1861, before draining, the field was equally well manured and sown to roots, with the following yield per acre. Turnips 300 bushels. Carrots 179 bushels. Mangels 140 bushels.

The surface of the land was such as to require much deep digging.

Farmers' Institutes in New Hampshire.

The New Hampshire board of agriculture will hold a meeting at Center Harbor, Wednesday, January 19, and one at Belmont, Thursday, January 20, commencing at ten o'clock a. m., and continuing through the day and evening. The subjects discussed will be "Corn," "Manures," "Grasses," "Swine Breeding," "Poultry," "Neat Stock," "Health on the Farm," and other subjects, according to circumstances.

For the VERMONT FARMER.

Hay.

What color ought hay to be when it comes out of the mow in the winter?

Suppose we have two mows of hay of the same size, taken from the same kind of soil, from land that produced the same amount per acre, cut at the same time, of the same quality, in short two mows of hay alike in all respects and conditions, except that one was dried enough so that it comes out green, and the other put in green enough so that it becomes hot all through, and comes out reddish brown. Now the question is, does anybody know by analysis, or by carefully conducted experiments in feeding which mow of hay is worth the most?

If so, we would be pleased to have the question answered in the columns of the FARMER. It is a question that in these days we very much want answered, for men are telling us to cut our hay early, while it is "sappy" and before it gets to be "woody fiber." And they also tell us to be careful not to over-dry it, that the sap will not hurt the hay in the mow, only dry out the water, that's all. They say cut it and put it in the same day—before noon a load or two if you have time. Now I really think men ought to be careful what they teach.

Suppose farmer A. belongs to the farmers' club and is an easy, confident talker. On the general topic "hay" he says, "cut it early and put it in the barn green. I cut my hay early and put into the barn the same day. It don't hurt at all. You need not dry your hay so much. It hurts hay to over dry it in the hot sun." Mr A's land is dry, gravelly and poor, does not produce over a ton to the acre, and much of it not even that. He says nothing about that however, but says "it shrinks hay awfully to dry it so. Instead of turning over hay at two o'clock p. m., you better be raking it up, so as to get it into the barn before the dew falls. Farmer B., who also belongs to the farmers' club, but is not a public speaker, says to himself, "I should like to get along faster haying, and if hay put in green—only wilted a little, and the water dried out, wont hurt in the mow, I'll change my fashion a little and do as neighbor A. does. He talks well." As Mr B.'s meadow is moist and rich, and cuts two tons to the acre, the result is, he has some fearfully hot hay mows, and the next winter it comes out in black and white flakes.

Now it seems to me Mr A. has been broad casting bad advice pretty liberally, and that Mr B. is helping harvest the crop.

I don't remember of ever seeing any well authenticated statement of the comparative value of bright green, and mow burnt hay.

The question is between hay put in dry enough so it will not heat, and hay that does not differ from it in any respect, except that it was put into the mow green, got very hot and comes out brown. If either is better than the other, why? and how so?

Now, in January, is none too early to begin to work out this problem.

SILAS HOPKINS.

[Our correspondent is referred to comments on another communication on this subject. The heating of hay, whether from water or its own sap, is combustion, even though it does not proceed to the extent of bursting into flame. It would seem that even though it may not go far enough to cause molding, and the hay comes out a light brown, some of the nutritive elements therein must be burned up. We shall be glad to receive for the FARMER, reports of experiments or analysis bearing on this question. In the meanwhile, we shall prefer to have our hay cured so that it will come out a bright green.]

For the VERMONT FARMER.

Drying Hay.

Every intelligent, practical farmer knows that after grass has become ripe and the weather is warm and dry, there is danger of drying hay too much; than it will do sometimes to cut it down and get it up before dinner. But when the grass is green, not yet in blossom, to talk of giving it a few hours sun and then pitching it into the bay to steam, mow-burn, sweat and sour is respectable nonsense. A very good way is to partly dry early cut hay and mix it with old hay or straw. In this way the dry straw is benefited by absorbing the juices of the green hay and the clover and daisy blossoms of the new hay will look as fresh as when put into the mow. It seems that the state board of agriculture in their wisdom have declared in favor of mow-heating or drying hay, instead of air and sunshine.

Col Mead is reported as saying at Canaan, N. H., "I cut my grass early and cure my hay as little as possible, fill up my bays in sections. This year I had some very hot bays; was afraid of spontaneous combustion. None was injured except some that was pitched over. Now we suppose that it won't do to question doctrines that come from so high a source. We should not have been surprised to have heard them from some of the pale-faced, slim-fingered professors connected with that board, but for a practical farmer to say that a heating mow of hay receives no benefit, but injury, from pitching it over, is a matter of surprise. We have been in the habit for years of curing all kinds of fodder more or less under cover. Our practice is during the season of haying to keep green hay on the scaffolds over the barn floors and after it gets warmed up a little to pitch on the mow and replace by another load.

What farmer has not frequently drawn in a load of hay in time of a storm or shower, so green that after letting it heat 24 hours he has only saved it by pitching it over and exposing it to the air. But the doctrine is, let it burn, it will be all right except what part is exposed to the air. Of course the heat will rise from the load or mow and the top will be more affected than the rest; but to say that mow-burnt hay is not injured is too absurd to talk about. Grain when not thoroughly dried will heat and spoil, whether in the kernel or ground and the same rule holds good through the whole vegetable kingdom. We confess that it is a nice thing and requires great skill to cure hay as it should be. Much hay is dried too much, but to put hay into a mow so green that there is danger of spontaneous combustion is worse still. E. W. B.

[We desire to remind our correspondent that a hasty denial of facts stated by another, is not regarded by those accustomed to courteous debate as adding to the weight of argument. Col Mead is too well known in Vermont as a very intelligent farmer, close observer and high toned gentleman to need any defence at our hands. From our own observation of the process of fermentation of partly cured hay, and the well known laws affecting that sort of combustion, we have no manner of doubt that Col Mead stated the exact truth. It is one thing to spread green hay in the barn so that the air can have access to it and cure it without heating; and quite another to pack in the mow, and after it has become very hot to throw it open to the air. The principal appears to be, as the editor of the FARMER stated at Canaan, Vt. (not N. H.). that when hay is heating in the mow, the contact of air helps the process along; just as a breath of air lights a smouldering fire into a blaze. The first is combustion, same as the last.

It is an undisputed fact that in certain sections of Pennsylvania farmers practice a system which produces what is called "brown hay." The grass is mown in afternoon, when entirely free from dew and external moisture. (When scythes were in use it was common to throw it into double swaths.) The next forenoon, after the dew is dried off, it is carefully shaken up to sun and air, and after being slightly wilted is put in the barn. The barns are boarded as nearly air tight as may be, and have large bays, which give little air surface to the mow. A bay is filled as rapidly as may be; one being filled full before another is begun, and before heating begins, if possible. The hay is trod in solid. This hay all heats. About a foot on the top will be as "rotten as a pear." The remainder of the mow takes a light brown color, does not mold, and is eaten with relish by stock, and makes nutritious food. Sometimes a layer of straw or old hay is placed on the top of the bay to absorb the moisture, and protect it from the air. By this a smaller portion on the top is lost. The principal is similar to that by which Messrs Warner Rhodes & Co, of Philadelphia and other firms are able to preserve vegetables and fruits in air tight cans. If the air is all expelled there is no fermentation. As it is impossible to exclude all the air from a hay mow, a certain degree of fermentation follows. It is claimed by those who have given attention to the subject that fermentation of hay partly wilted resulting from the presence of sap alone, does not proceed to the extent of rotting or even molding and musting, provided the air is excluded. We give no opinion on this point. If hay (or grass) is packed into mows full of water it will rot. When our correspondent intimates that there is no danger of over-curing grass which is cut green, he makes a grave mistake. There is reason in this matter as in all things. Truth is to be found by searching honestly ourselves, and accepting the help of others; not by supercilious sneers at statements of fact. We are not aware that Col Mead, or any member of the board, or any other sensible farmer, has recommended to cut grass "green, not yet in the bloom, and after a few hours sun, pitching it into a bay, before noon the same day," or that "the state board of agriculture has in its wisdom declared in favor of mow-heating or drying hay instead of air and sunshine." Our own practice is to cure hay, if possible, so that it will not heat in the mow. But if it goes in very green mix in layers of old hay or straw, pack it in tight and cover it with straw, and let it stay there. As good hay as we ever fed was green clover treated thus. It came out green. When it goes in damp, we expect it will mold, and be nearly spoiled unless it is dug out.

As we understood the tenor of the debate at Canaan, it was this, that to save the injury to hay from exposure to storms it had better be put in quite green, if partially wilted; that hay is often cured too much; that hay heating in the mow from the sap is better if left in the mow than thrown out. And the instances named were mentioned in proof of these theories, rather than as evidence that it is better to put hay in, to the barn in such condition that it will heat.

Hay may heat in the mow and come out sweet and entirely free from mold or must, but it is by no means certain that it will escape so easily.

Speakers are not sufficiently guarded usually in referring to this matter, and parties often infer more than is meant. We have known farmers to lose several hundred dollars' worth of hay, in the effort to carry out the idea they had heard, of putting it in green, the day it is cut. It takes but very little water to make a whole hay mow musty.

"E. W. B." appears to think that "pale-faced, slim fingered professors" are plenty on the board of agriculture. Its secretary is a man who labors with his head rather than with his hands. And that head is doing more work for the cause of agriculture in Vermont than many hands could possibly do.

The six appointed members, as is well known, are practical farmers who are in the habit of laboring with their own hands in the cultivation of their farms, and who have, in the school of toil on the farm, gained all they know about farming. Let them be judged by their work.]

For the VERMONT FARMER.

Stock and Feeding.

I have read with a good deal of interest the discussion in the FARMER about the best kind of cows for the dairy, winter management of stock, large vs. small cows, and feeding meal, and I am still at a loss to know how much to store away for future use. But if there is room in your paper I will try and say something upon these subjects, hoping no one will think that I am well enough posted to lay down correct rules, but perhaps I may advance some idea that will draw out some discussion that may be beneficial. In the first place we have a great many breeders of blooded stock who have taken a good deal of pains to raise up nice stock, and I think it is a good deal as you said about some breeders, they breed for looks more than anything else, and always find some one ready to buy regardless of the real worth.

Now the question is, shall we raise the Shorthorns, Ayrshires, Devons, Jerseys, or Natives for the dairy, and this cannot be answered any better than to say, the kind that will give the largest flow of milk and the greatest percentage of cream from the same food is the kind for the dairy. I have seen some Native cows that with the same food are equal to any other kind for butter. It cannot be disputed that we have good and poor cows in all classes. I was talking with a well-to-do farmer in Berkshire the other day about cows, &c, and he said that he had some Durhams, and after trying them made up his mind that he did not want any more. This fall he had to sell off some cows, so he took out those that showed the Durham the most, and is now trying the Jerseys. Mr S. H. Dow of Enosburgh said, in the meeting of the Enosburgh farmers' union, that he liked the Jerseys, but would not advise any one to sell their stock and replace with the Jerseys at the present prices. I saw a small two-year-old Jersey heifer in Fairfax the other day, and I asked the owner what she was worth, and with a prompt, ready answer he said $250. Now, how can a farmer of moderate means afford to pay such a price for one cow. In the same yard I also asked the price of some Ayrshire cows and found them down to $75. As for Ayrshires for butter making, I have not the best of an opinion. From what I know about the Durhams, I think that as a class they are very profitable, both for butter and beef; some of the cows cannot be beat by any Jerseys, Ayrshires, or Devons for butter. In conclusion I would say that it is my opinion the Durhams and Jerseys crossed will make a good dairy cow for butter making; Ayrshires for cheese, and Devons for working cattle. H. S. L.

Enosburgh, Jan 3, 1876.

For the VERMONT FARMER.

Raising Potatoes.

I have a piece of stubble ground that will not bear good oats without manure. I intend to try an experiment in raising potatoes on one fourth of an acre of it next year. Will you give me some information as to what kind of manure to use? Would you put ashes in the hill, and if so, in how large quantities? Would hen manure be good, and if so how would you use it?

Would hog or stable manure do best spread on and harrowed in, or in the hill? If you will give me the best information you can on the subject through the columns of the FARMER, I will report the result next fall.

I can see no reason why potatoes will not yield as well now as fifty or sixty years ago, if they are kept clear of weeds and as much plant food of the right kind as they need supplied them. Nor do I believe that it will cost as much to get 400 bushels of potatoes on one acre as on four acres, as many farmers do. YOUNG FARMER.

["Long manure" is best for potatoes. It is best mixed with the soil rather than in the hill. Manure in the hill is too stimulating to potatoes and causes decay or rust. Ashes, and on soil where it works well, which can be ascertained by trying it, plaster in the hill (a handful of ashes and half a tea spoonful of plaster) form as good reliable and cheap an application as can be put in the hill. If manure is put in the hill it should be strawy. If the soil is very poor and we had a few ashes and no coarse, strawy manure, a little hen manure composted with an equal part of ashes and a little plaster might be used to give the plants a start, but nitrogenous manures, especially in an unfermented state, cannot be recommended for application in the hill to potatoes. Our practice is to spread strawy barn-yard manure on sod, plow it in five inches, and put ashes and plaster in the hill. The only improvement which our experience suggests upon that is to plow the land early in autumn, and harrow in manure. Cross plow and harrow in spring and apply plaster and ashes in the hill.

It is true, as "Young Farmer" says, that the yield of potatoes may be largely increased by supplying the necessary food. But it will be found to be a difficult thing to put the soil in so favorable a condition for the crop as it was fifty years ago. The elements needed for the potato growth can be supplied. But the mechanical condition of the newly cleared land is gone. More than that the diseases which affect the potato in modern times cannot be prevented by giving plant food to the soil.]

For the VERMONT FARMER.

Letter from a Doubter.

I see that in the FARMER of December 24th., you quote Deacon Buffum as saying that all the cows in the town of Conway averaged last season $137 per head, while some daries did better.

Now I wish to inquire if there is not some mistake about the figures. That individual cows or even some dairies may make 334 pounds of butter and upwards, may be, but that all the cows in a town shall average 334 pounds in one season, is going it pretty strong, for it must take that much butter at the price quoted, viz 41 cents to net the $137 given as the average product of all the cows in the town. An answer in the FARMER will oblige an unbeliever. A. D. ANNS,

Montpelier, Jan 4, 1876.

[Deacon Buffum did state that all the cows in the town of Conway, Mass, gave an average income of $137 each. We have no doubt that the statement is authentic. Perhaps Deacon Buffum will give the readers of the FARMER more in detail how this result is produced—the breed, feed, management etc.]

Meeting of the State Board of Agriculture, Manufactures and Mining,

At Barre, Tuesday and Wednesday, December 28 and 29, 1875.

Mr Eli Holden, who delivered the opening address, after welcoming the members of the board, spoke of the advantages to be derived from their meetings, and hoped the seed sown would be as lasting as the granite in the hills around us.

Mr C. G. Pringle of Charlotte read an interesting paper on "The Potato Disease," which was illustrated and explained by diagrams. He spoke of its causing famine in Ireland, and setting the tide of emigration to this country. It is likely to convert our New England into a New Ireland. A microscopic insect was first thought to cause it, but in time the true cause has been found to be fungus. It propagates itself in three ways, by simple spores, swarm spores, and resting spores. To check it, you have only to destroy the resting spore. It may be checked, and in a measure prevented, first by collecting the tops and subjecting them to boiling heat; plant no infected potatoes, nor on badly infected land; boil the diseased tubers. Warm, wet weather and too much manure, favor the disease. Fat manures create in the soil just such a condition as warm, muggy weather. Dustings of sulphur will destroy the fungus.

Mr John H. Mead of West Rutland read a paper on "Sheep Husbandry." It was followed by a lively discussion on dogs killing sheep, the subject being referred to a committee for a report.

A paper entitled "Out of the Ruts," was volunteered by Mrs Edwin Carlton of Barre, after which Prof W. O. Atwater of Wesleyan University, Connecticut, and director of the first agricultural station established in the United States, was introduced. He announced for his subject "Agricultural Experiment Stations," and referred to his personal reminiscences and the fact that his boyhood was spent among the Green Mountains. He proceeded to answer the question, what are experiment stations? He stated that every farmer is constantly making agricultural experiments, but owing to the lack of facilities and previous training in careful observation the results are not satisfactory. These stations are to supplement the work of the farmer and carry out experiments, which, however desirable and valuable, his time and circumstances will not permit him to complete. Specialties have grown up, a divison of labor has been found remunerative, so the experiment station has come in as a specialty to the assistance of the farmer.

The first station was established in Saxony in 1852 and, with the exception of the year 1861, one or more have been established every year since until now there are over seventy European agricultural stations. Practical farmers have been led to take great interest in these from the first and were induced to form the first from the fact of the great help that science was giving to other arts and professions. Progressive and intelligent farmers could not let pass what promised so great advantage to them, and have seized upon the contributions of chemistry and allied sciences for their benefit. These stations were at first established by private enterprise but in many cases government has come in with its aid.

The speaker referred especially to the English station established by Mr Lawes, who with the aid of Dr Gilbert has carried on experiments for thirty years. The early experiments were carried on chiefly with manures, and most valuable results, such as could not have been predicted by any previous observations, were reached. These experiments of Lawes and Gilbert have become almost classic and they are referred to as settling any disputed point.

It is popularly thought that field culture yield the best results. But not so. In hot houses experiments have been carried on very successfully. Perhaps the very best results have been obtained without any soil at all. The germinating plantlet is made to put down its roots into a clear solution of such substances as the plant is supposed to need. By withholding a certain ingredient it is determined whether that particular substance is necessary to the development of the plant. In this way the essential food for each agricultural plant can be and has been determined.

Chemical analyses are also carried on at these stations. Commercial fertilizers are valuable according to the amount of nitrogen, potash and phosphoric acid they contain. Some of these artificial manures have formerly contained little and in some cases none of these and are of no use. Chemical analysis has done away with falsifications and adulterations perfectly in England and Germany and is doing it largely in this country. The German farmer buys not by the ton in bulk, but according to the amount of the three valuable materials present, which is determined by chemical analysis. The work of analysis of similar fertilizers, done under the direction of the Vermont board of agriculture, has improved their character by thirty-three per cent throughout the state.

In one little German province a saving in the matter of fertilizers of $20,000 had been made and in all over $100,000, and this with a station whose entire annual expense was only $5,000.

But this not all. Experiments are made about the keeping and fattening of stock. These experiments have been very elaborate and expensive, but have been eminently satisfactory. A farmer should feed his stock according to the results he wishes, whether for beef, or butter, or for labor. By chemical and digestive experiments the value of different kinds of food for different purposes has been determined. Fodder rations which have been planned in accordance with these experiments are now used in Germany and are proving of wonderful value in the feeding of stock. What may and what may not be fed with economy is well determined. These are but a few of the illustrations of what the European experiment stations are doing.

For some time past an effort has been made in Connecticut to establish an agricultural experiment station. Two Legislatures have had the matter under their consideration, having been asked to make an appropriation of $8,000 per annum. This they refused. The last Legislature was however prevailed upon to appropriate $700 per quarter, or $2,800 a year to begin. A gentleman offered $1,000 in addition with the assurance that the corporation of Weslyan University would give such facilities as their chemical laboratory afforded. With this a beginning has been made. The work thus far has been chiefly to determine the value of fertilizers. In this department a large number of analyses have been made: The value of grasses as to the time of cutting; the action of roots; the chemical action of the soil.

Ask for an agricultural experiment station in the right way for Vermont and you will get it. But do not expect too much. The work will be slow. The best and most enthusiastic workers will work slowly, but for every dollar laid out five, and more than this, will come back to the farmers of the state.

Prof Atwater's address was wonderfully interesting. The hearers showed only slightly their enthusiasm by their earnest applause. An instructive discussion followed.

Tuesday Evening.

Prof G. H. Perkins of Burlington read a paper on "Noxious Insects." Pres M. H. Buckham of the University of Vermont gave an interesting address upon the "Home Life of the Farmer." His idea was, that the farmer's life ought to be more self-respectful and contented. It was really painful to witness the chronic display of discontent and dissatisfaction with their calling, which seems to prevail among farmers. He commented severely upon a class of men, intriguers and and mischief makers, who are trying to turn this feeling into jealousy and hatred. Briefly noted, some of the speaker's leading ideas may be thus summarized: How large a part of our home life is, properly speaking, home life? Three-fourths of all we think and do is connected with home life. If home is made happy, we can carry the burden easily outside, but no amount of money can make up for one unhappy home. Farmers have the advantage over others in location, blue sky, green grass and other surroundings. Why is it that country scenes affect us more than all other things? Farm scenes carry one back to early recollections. He then compared the country with the city. After a quotation from DeQuincey he (President B.) spoke of there being in the country no quarreling with the milliners and dressmakers, and less slavery to fashion. A city house was described, how you have to climb up stairs to get to a sleeping-room, etc. Land is cheap in the country, you have a variety of rooms, enough sunshine, and all this is avoided. Then there are the different styles in the furniture; that of the city house does not look home-like, but seems to keep impertinently popping up, all the time, and asking, "How much do you suppose I cost?" Elegance is the characteristic of the city house, while the general idea of a comfortable farm-house implies good air and sunshine in summer and plenty of wood in winter, milk, eggs, poultry, cider, butternuts, horses to ride, warm quilts to sleep under, plenty to do with and plenty to do; also freedom from what Mrs Grundy will say. What a luxury it is to live where one can wear old clothes, eat with a knife, and do a hundred other things which are forbidden by city fashions. Virtue and morality, also, find a congenial soul in the country: reverence for age, kindness to the poor. Substantial equality likewise prevails; the very rich and very poor and few. Yet, after all, home life on a farm, it must be confessed, has some serious drawbacks. Some of these the speaker proceeded to enumerate and suggest remedies for. The farmer must make up his mind to content himself with a common farmer's life. Perhaps one daughter marries a wealthy city merchant, while another, just as smart, finds her husband nearer home among the working men. This provokes jealousy and frequently dissatisfaction. We find farmers joining to destroy railroads, cut down the salaries of school teachers and ministers. If they use rightly their opportunities, they need envy no man. They should beware of demagogues and mischief-makers. Farming presents opportunities for money-making that have not yet been fairly tested. Why not take hold it, test and develop it thoroughly? But the farmer must be reconciled to moderate profits and a plain style of living and above all keep clear from the itch of money-making.

Thus he will become a different man. So soon as he gives up the idea of becoming rich, he will see that he can afford many little things that tend to make home life pleasant. Let him have good society, a moderate sized farm, abandon all idea of laying up money, and put it first in a farm and second in a house. Money thus invested will make his farm more productive. Next we shall see two people systematically adding to their home, and yearly adding things of use and comfort, such as shrubs, fruits, flowers, etc. Do a little in providing these and nature will do much. Then get useful and beautiful things that cost money—they may accumulate slowly, but will be all the more highly prized—good books, pictures, a piano, perhaps, some nice furniture, a good carriage to ride in, a rifle for Johnny and a pair of skates for Tommy. In this connection the speaker recommended all to read Charles Lamb's essay on "Old China" as the reporter understood him, from the rear of a crowded hall. (It might have been "Old Cheese," however.) Dr Buckham further examined the common complaint that "farming don't pay six per cent." He asked, "Is it safe to invest the profits of a farm outside of it?" and argued that it will pay, the returns being increased by an increase of capital, by way of saving labor with improved machinery, and by improved stock. The trouble is that farmers do not have faith enough to sink good dollars in these things, and feel sure they will all come back again. To illustrate a point, he told of a Scotchman who said to his son, "Sawney, don't you get in debt, never, never! But if you do get in debt, Sawney, let it be for manure!" In concluding he spoke of the increasing demand for agricultural improvements, all of which must inure to the benefit of every man and woman on a farm. With these come an increase of margin and means of producing more of the luxuries of life. Culture and religion must be nourished. Farmers already have greater opportunities than they appear to have, and are bound by them to become intelligent men. They also have more leisure than professional men. We who are not farmers, have a better opinion of your calling than many of you have. Therefore increase your consequence by increasing your intelligence. Elevate the public schools, establish libraries, patronize good newspapers and periodicals, establish clubs for getting and giving information. All this is necessary to meet the corruptions of the day. Public virtue will not triumph over corruption and mob rule until the farmers acquire the intelligence necessary to meet them.

This address was received with frequent applause, and concluded the exercises of the first day.

Wednesday Morning.

The hall was again filled, both day and evening. Had the sleighing been good, it would have been uncomfortably crowded. There was comparatively little interruption of the speaking by persons running in and out.

The forenoon session opened with an able practical address on the "Selection of Dairy Cows," by G. S. Fassett, of Enosburgh. He said he had been engaged in dairying eighteen years, in butter making almost exclusively. Recently he had commenced raising calves. There is a great difference in selecting cows. They also need liberal and judicious feeding. In making a selection, brains are of more account than breeds. We need to understand certain natural laws, and trace cause to effect. He belived that, by judicious selection, training and feeding, the net profits from Vermont dairies can be doubled in ten years, although the number of cows is decreased one quarter.

"The General Dairy Interest" was next discussed, by Hon A. T. Smith of New Haven, who in an extemporaneous address kept the audience in excellent humor, frequently exploding into violent fits of cachinnation. He spoke practically, and from personal experience. This was a nice meeting, and Barre a nice farming town. He congratulated the people that their time-honored Academy had recently been saved from the devouring element, alluding to its principal (Dr Spaulding), who if he had $2,000,000 would spend the whole of it for Barre. Indeed, the people here generally seem to live on that principal. Mr Smith said he was not prepared with any scientific written analysis of the subject assigned him, like those who had preceded him. His experienced had lasted 35 years. A certain man said he began farming with but two cows, one his wife's, and the other his own. "That was not my case," said Mr Smith; "I had one cow, and the other belonged to another man; I hadn't paid for her! After I did so, she was the best looking cow I ever saw, and made the best looking butter; but if ear-wax is really a test of yellow butter, I must say she had mighty white ear-wax!" [Laughter and applause.] Continuing, he said that when he first began dairying, he paid nine dollars a head for seven cows; butter then sold at from ten to twelve cents. Next spring, he procured cows from Grand Isle at sixteen dollars per head. People talk of hard times, but he believed that prices are as remunerative now as they were then. He then sold young cattle at seven dollars and fifty cents per head. We pay out much money here in Vermont to sustain our dairy farms which ought to be invested in improving them, raising fodder and improving our grass. The dairy is the great interest of Vermont, and like our common schools, benefits it most. It is best for our boys to keep at home. Work on a dairy farm does not need the expensive fitting up of billiard and card tables, pool and whisky stands. Economy in farming is well, but do not economise too closely. Honest labor should be respected, and fairly remunerated. Mr Smith said he had made cheese and butter. He used the Jewett pan.

A discussion ensued. Mr Smith remarked that he had fatted 110 calves, mostly on skim-milk. In regard to milk pans, it is said that instead of cooling we must heat our milk. What shall we do with all our pans? Here he related an anecdote about a man who sold a horse for a "setter," that would sit on his haunches when he saw an animal in the woods. The purchaser mounted and rode the animal away on a hunting excursion. Coming to a stream the latter set up in the water with his rider, who went back and complained of his bad bargain. To this the seller replied, "I sold him for a setter; you see he sets in a stream just as well for fish as he does in the woods for deer; he's just what you want."

Mr Fassett said he had experimented with the dry pan, and used it for his twenty cows. He set his carrying pails in a tank, cooling not below 60 deg, say 65 deg. The best Enosburgh dairies now use the dry pan.

A. J. Hollister of East Montpelier had thrown away water, and realized 25 per cent by so doing. With an ice-closet in his milk room, the milk only soured once last season. One-quarter of the expense laid out for an ice-room is better than all the patents. He had sold all his butter to a Boston commission dealer at from five to eight cents above the average market prices. Ice costs little. A big cake above, and the cream and butter set beneath, all will be cool and nice. He still used large pans, shutting off the water, which caused sweat and mould. He kept the ice-room about 60 deg; it always should be down to 65 deg.

Mr Fasset thought large pans did away with one-third of the labor. Neatness, dainty neatness, was required in butter-making. He preferred the shaped tubes to round ones. Large pans have fewer cracks and crevices. He used pails which contained 45 lbs of milk, and strained into large cans; had found no disadvantage in mixing the milk.

Mr Kinney thought the reason why Vermont does not make as good butter as formerly was neglect to work out the buttermilk. That was Prof Arnold's opinion.

Mr Hollister said he had increased his butter 25 per cent in a season with young cows.

Mr Kinney asked how Senator Smith planted his corn-fodder.

Mr Smith said broadcast; two bushels of Western and one of common corn.

At the afternoon session Mr Wheelock, from the committee appointed to consider the subject of dogs killing sheep, reported a resolution, which was adopted without further discussion, apparently by a unanimous vote, as follows:

Whereas, Serious loss is occasioned to farmers from the destruction of sheep and other property by dogs, therefore,

Resolved, That it is the opinion of this meeting that the tax on dogs should be largely increased, and the amount thus raised should be used in payment of damages done to sheep-owners, when they shall be unable to collect the same from the owners of said dogs.

The next paper read was on "Increasing the Grass Crop," by N. W. Skinner of Plainfield. He said grass is king in Vermont, and every one admits that the crop should be increased. Eight years ago he bought a farm, 55 acres being mowing. It then produced poor hay, but is now improving. He used no fertilizers, but took the earth from the old barns, cellar, about the sink-spout and hog-pens, and composted it; in fine, he did this until every old place about the farm became odorless. This was spread on next year as top-dressing. He turned out his cows to pasture, summer nights, giving them a little meal every day, and doubled the grass product; the meal was better than fertilizers. He fed hay when green, and never used his mowing for grazing, either fall or spring. We feed too close. Again, it is dishonest to get two crops without making any return. You can not cheat nature, however dishonest you may be in other purposes. He would cultivate grass like any other crop, well pulverizing the manure. He top-dressed in the spring, after haying and in the fall. Intelligent discretion should be used, and some botanical knowledge is also necessary to success. In his old house there were no fevers; a free use of absorbents preventing disease. The first smell of decomposing matter is always noticed, and warning taken. A neighbor, noticing the improvements on Mr Skinner's farm, asked, "How shall I improve mine?" He was told to look under his feet. He had lost one-half of his family by fever. The speaker had seen men drawing fertilizers, purchased at much expense, upon their farms, while liquid manures literally ran under their feet, on their own land.

To an inquiry, "would it not be better to yard your cows, instead of turning them out to pasture nights, and then spread on their manure?" Mr Skinner thought the latter would require more labor. Cows herd in the dryest places, which need manure most. He had also observed that it was best to cut hay early. An acre of land which will produce one crop of corn will yield two of hay; therefore he believed it good policy to buy Western corn and raise grass.

Dr J. S. Spaulding of Barre, by request, detailed his experience on a piece of mowing land. He had a small piece, just below a sink-spout, which he had mowed six times. Another piece he mowed May 20, and June 24, when he had herdsgrass 32 inches after cutting, and also August 24 and October 25, when frost had come. The aggregate measure of the grass was 108 inches. He used also stable manure and superphosphate. He had three crops of clover blossoms, each two feet high when cut, and it was reported that he had clover six feet high. His practice was to cut as soon as he could see a head of herdsgrass, or clover, just opening. He had clover early in the spring. As soon as the field is red, he had a second piece started. A cow eating clover that has the head just coming out gives the most milk, and that is the time to cut it.

Mr Fassett said it was a mistake to say that the West will never make butter. A neighbor of his who has gone there says there is nothing in the way. We must be careful that they do not get our laurels.

C. Horace Hubbard, of Springfield, concurred in this opinion, and thought the West could compete with us in everything except men. A man with his boys to work here in Vermont had, perhaps, better raise his own corn. But he himself was not so situated as to do this. In his county, Windsor, 95 farms out of 100 are running down. This was a result of raising too much grain. He had tried it. When first commencing, he expected soon to double his grass crop; he sold milk for more than it would bring when made into butter and cheese; his grass crop did not double as expected. Four years ago he found the grain cost him more than it should, stopped growing it, and the grass has since doubled. He is going to double it again. It is easy to make grass grow; it is the least exhausting crop, and comparatively little manure is needed. There is a prejudice against top-dressing, the reason for which Mr Hubbard conceived to be that many put the manure on in hard lumps, and upon old roots. He had used orchard-grass successfully. The land for it must be moist, fertile, well and frequently fed, and mowed early, or it will be worthless. He sowed two bushels of orchard with ten pounds of clover to the acre, June 1st. Grass thus sowed makes cows hold out their milk. We should raise more orchard-grass.

A paper on "Horticulture and Its Benefits," by E. E. Andrews of Berlin, followed. He placed upon the table two or three pecks of various varieties of apples of his own raising, perhaps twenty or more kinds, and discussed their relative value and productiveness on Vermont soil. No crop, he said, was more remunerative to the farmer than fruit. Apples take the first place in rank. They contain most phosphorus, and are especially good for those who do brain work. The acid is also good for the liver, and antibilious. This fruit should come into the daily fare of all. Apples are better than pills. He thought nineteen-twentieths of the Vermont farmers can raise their own fruit. But agents have badly imposed upon them, bringing here varieties as useless to central Vermont as the June bug. Mr. Andrews had some thirty varieties, of which he would recommend but few. The Rhode Island Greening cannot be successfully grown here. The Fameuse, a dark red, middling sized apple shown, was the most profitable. He had a tree 73 years old, which his father now living at the age of 88, set out when 15 years old. The plot of ground should be heavily dressed, plowed under, and the manure allowed to decompose. Visit the nursery yourself, select the hardiest trees, companions to the best you have around you; set twenty feet apart, so that the limbs can have ten before they touch each other; cultivate for five or six years; do not get too near the tree with plow or cultivator, but stir the ground frequently with the hoe. Take care to open a large and deep hole, so as to give the roots space when you set the tree out, arranging carefully the small fibrous roots. Use waste bones or oyster shells near the roots; put no manure near them, but pulverized soil; do not mass dirt around the trunk. Eight inches of ashes will doubtless kill mice, and the tree, too; snow trod down around the roots preventing their burrowing, and tarred paper their gnawing the trunk. Use all your waste suds; wash the trunks with one quart of soft soap, to five or six of water, to kill the insects. It will not injure the tree. Pruning should be carefully studied. In this connection, Mr Andrews detailed the proper way of heading and low limbing. The latter should be left to grow two and a half feet from the ground, while the centre of the branches should be left open to receive sunlight and dew. Never use pruning shears in any case. Pear culture he did not think profitable in central or northern Vermont, where they can be purchased cheaper than they can be raised.

Wednesday Afternoon.

In the afternoon and evening two papers were read which were assigned for the first day. It was rather overloading the programme of the last day, and necessarily curtailed the discussion of the different subjects introduced. Prof H. M. Seely, secretary of the board, who has charge of the department of chemistry and geology at Middlebury college, was called upon late on Wednesday afternoon. His subject was "The Original Vermont Plow," meaning, as he said, not the old-fashioned, mold-board implement, but the glaciers and icebergs which geologists suppose, long ago, came down from the north, ploughed up the mountains, hills and valleys into their present shape, converting them into rocky hills and fruitful dales, and then receding again to their arctic habitations. Boulders, snow, vapor, icebergs, etc, and the way they are all made, were fully considered, in a learned scientific lecture, illustrated by diagrams. It cannot well be sketched in a brief report, but will probably appear in the next volume of the board's report, fully illustrated.

Another of these omitted papers was read, at the evening session on "What will make farming more desirable?" by D. B. Wheelock, of Barre. His chief point was to make it more attractive to young men, thus keeping them at home. Encourage farmers' meetings, farm clubs, and discuss every week, in which farmers and their wives should take an active part. Finally, cease this everlasting croaking about its being an unpaid vocation. Let us love our calling better. Education is doing much, the press is speaking for us, and the board of agriculture has come to our aid. Mr Wheelock went into an argument to show that farming will pay, and how it is done. Few farmers keep a strict account of profit and loss. If they did, they would find that they get a better and easier living than they could in the large towns and cities.

Dr J. S. Spaulding read the concluding paper, a very able one, on "How to Educate the Laborer." This, like Prof Seely's, should appear printed from his manuscript, to do him anything like justice. We have some notes of it, but not room for their publication with this already too extended report. He remarked in the outset that "Man is created to think, as well as to labor with his hands," and proceeded to enlarge upon this to show the necessity of a certain degree of mental training before a trade is learned, be it agricultural, mechanical, or otherwise.

He advocated some study of the classics also; as well as mathematics and other English branches. All the "ologies," he said, are necessarily studied at a great disadvantage, because they contain so many Latin and Greek terms. The classics, particularly the Iliad Homer, strengthen the mind and he believes classical education to be most effective and economical. The doctor's address was very favorably received.

A vote of thanks by the board, moved by Mr Wheelock, was passed. Col John B. Mead of Randolph, responded in their behalf, and subsequently explained how he was making his own farm-home happy and attractive to his two boys, who cannot be driven away, it was so easy to do work in their new barn. Next summer the house is to be enlarged.

The meeting, a most interesting and profitable one, came to a final close at nine p. m.

[Only a part of our report coming to hand, we have completed it by aid of the Montpelier papers.]